VI. Cuculus Lævis cæruleo flaveſcens, cui in ſupremo Capite Bronchiarum Opercula.

OR,

The Yellow Gurnard.

By Edward Tyſon, *M. D. Fellow of the Coll. of Phyſicians and R. S.*

IF we may juſtly inter on Identity of *Species* in Fiſhes, from the likeneſs of their Fins, we have then ſome ground to conclude, that this Fiſh (I am giving an account of, and which has not hitherto been deſcribed by any, as I know of) ought to be referred to the *Gurnard* kind. Not but that in many particulars, and thoſe very remarkable too, it differ'd from it. However, not finding any other *Species* it agreed with better; and the Fiſhmonger that ſent it to the R. S. not knowing any Name 'twas call'd by where taken, which was about *Haſtings* in *Suſſex*; I ſhall take Liberty to call it the *Yellow Gurnard*: and that I had ſome Colour of reaſon for doing this will appear, when I have compared this Fiſh with the *Red Gurnard*, and ſhewn wherein they agreed or differ'd.

And firſt of all, as to the general Shape of their Bodies I found an agreement enough. In both, the Head was the biggeſt part; the Body thence gradually ſtill leſſening and growing taperer, as it approached the Tail, where 'twas very ſmall in both. The *Yellow Gurnard* meaſured eleven inches in length, whereof the Tail was two. The Girth of the Head was four inches and a half.

The Fins, as to number and ſituation, or placing on the Body, were exactly the ſame in both; I ſhall therefore omit their deſcription, and only take notice wherein they differ'd in other Circumſtances. As in the fore Fin on the Back of the *Yellow Gurnard*, there were four or five *Radij* or Spines; whereof the firſt was ſix inches long; the next about two; the others ſhorter: In the *Red Gurnard* in this Fin were ſix ſtrong bony Spines, ſharp-pointed; whereof the ſecond from the Head being the longeſt, was only a little above an inch, and the reſt not much ſhorter. Note, the *Red Gurnard* I had to compare with, was but ſmall, and ſomething leſſer than the *Yellow* one.

In the hinder Fin of the Back of the *Yellow Gurnard* there were nine *Radij*; in the *Red Gurnard* fourteen; in both, the *Radij* near the Tail were the longeſt; thoſe in the *Yellow Gurnard* being two inches and a half long.

The Membrane that joyned theſe *Radij* of the Back Fins, as to Colour differ'd very much in theſe Fiſhes. For in both the Back Fins of the *Red Gurnard* this Membrane was all of a White tranſparent Colour. In the fore Fin of the *Yellow Gurnard*, the Membrane was yellowiſh with blue ſpots, and ſome edged with black, and the Membrane of the hinder Fin was of a faint bluiſh Colour, with four Yellow liſts or ſtreaks about a line broad, running the whole length, as in the Figure.

The *Pinnæ Bronchiales* (whereof there were two of each ſide, and their ſituation in both, the ſame, the uppermoſt being inſerted Perpendicular, the lowermoſt Horizontal to the Body) differ'd likewiſe in Colour. For in the *Yellow Gurnard* the uppermoſt Fins were white; the lowermoſt of a dark blackiſh Colour, with ſeveral beautiful long ſpots of an Azure blue. In the *Red Gurnard*, the uppermoſt Fins were of a dark reddiſh Colour; the lowermoſt white: But here between theſe two Fins I

ob-

obſerved three naked *Cartilaginous Radij*, which are not in the *Yellow Gurnard*, and are well Expreſſed in *Salvianus*'s Figure of the *Red Gurnard*.

The Fin on the Belly was plac'd exactly alike in both. The *Yellow Gurnard* here had nine *Radij*, and its Membrane of a darkiſh blue Colour. The *Red Gurnard* had 17 or 18 *Radij* here, and its Membrane tranſparent white. The Tail in both was much the ſame.

Over the *Anus* in the *Yellow Gurnard* was a ſlender pendulous body, which was not obſerved in the *Red Gurnard*.

The Colour of the Body of theſe two Fiſhes differing likewiſe very much; and I know not, but that it may be a Property in this Species to vary in Colours, more than other Fiſhes do. The Belly of the *Red Gurnard* was of a Silver Colour, and ſome part of the Sides near the Belly: the reſt, and the Back and the Head, were of a reddiſh Colour. In the Head there were were ſome ſmall whitiſh Spots. The Belly of the *Yellow Gurnard* was white, but under the lower Jaw was black. The Sides and Back were yellowiſh; but between the Belly and Sides there ran a blue ſtreak or liſt about a line and a half broad from the Head to the Tail; and a little higher on the Sides, there was a Chain of blue Spots the length of the Fiſh; for on the ſides of the Head I obſerved theſe blue Spots, only from the Eyes to the end of the *Roſtrum* the Spots were of a deep yellow Colour. There being therefore ſo much of blue and yellow over the greateſt part of the Body of this Fiſh, I have given it the Epithet of *Cæruleo-flaveſcens*; for, where the ground is blue the Spots are yellow, and where yellow the Spots are blue.

Tho, hitherto there ſeems a tolerable agreement between theſe two Fiſhes, yet in the Remarks I ſhall now add, the diſagreement will appear greater. For the *Yellow Gurnard* was without Scales, I therefore call it

Lævis.

Lævis. The *Red Gurnard* had not only Scales on the Back, but likewiſe a Ridge of ſpiny Scales all along the Sides; as alſo of each ſide the Back Fins were placed the like ſpiny Ridges or Scales. But the Belly ſeemed almoſt ſmooth, and had but few Scales, and thoſe very fine; and indeed thoſe on the Back were much ſmaller than thoſe in moſt other Fiſhes. If Mr *Leewenhoek*'s Obſervation be true, that even the *Anguillous* Kind are Scaly, then the difference will not be ſo great, the one having *Membranulous* Scales, the other *Bony*. Or it may be our ſubject is an *intermediate Species* between the *Gurnard* Kind and ſome other.

And this I am the more apt to believe, becauſe, tho it has Gills of each ſide, yet it had not thoſe *Apertures* at the ſides of the Head that the *Red Gurnard* had, and is common to moſt Fiſhes but the *Cteaceous* Kind; but, like them, the *Yellow Gurnard* had two *Apertures*, or large *Foramina's* placed on the hinder part of the Head, an inch beyond the Eyes, at which it ſpouts out the Water. By blowing into theſe *holes* I extended the Cavities where the *Gills* lay; and obſerved that over theſe Cavities were placed a flat Bone, which by the Contraction of its Muſcles might ſerve to force the Water out, and perhaps is aſſiſted in this action by another looſe Bone that lyes over it, whoſe Edges are jagged or indented, as in the Figure: At which place in the *Red Gurnard* I obſerved a ſtrong ſharp Spine.

Theſe *Foramina* in the Head of this Fiſh is a thing ſo very remarkable, that it may be looked upon as a *Characteriſtick*; nor do I know at preſent with what other Fiſh to parallel it with: For the *Cetaceous* Kind, that have Spouts in their Heads, have not *Bronchiæ*, but *Lungs*. The better therefore to diſtinguiſh this Fiſh, I have added this particular to its name: And could wiſh, that, inſtead of thoſe ſilly Names that are given to moſt Fiſhes, others were found out, that might be more Expreſſive;

and

and that their *Claſſes* were ſo order'd by ſuch *ſpecifick* differences, that one might better know where to range them, as in a good perfection is now done in the *Vegitable* Kingdom, that is more numerous.

But to conclude, I obſerved the Eyes in the *Yellow Gurnard* were placed more on the top of the Head, and the Skin here covered almoſt half of them, like an *Eyelid*; which I did not obſerve in the *Red Gurnard* whoſe Eyes were placed more at the ſides of the Head. The Head likewiſe of the *Red Gurnard* was more protuberant, in the *Yellow*, flatter. The End of the *Roſtrum*, the Teeth and Tongue in both were exactly alike; only in the Palat of the *Yellow Gurnard* I obſerved two *Cartaligonous* Bones, whoſe edges were bended downwards from the Palat, and did ſerve, as I ſuppoſed, for the hooking in and ſtaying the Cartilage of the Tongue, when it makes a Compreſſion for the forcing out the Water by the *Foramina* of the Head: Which Contrivance I did not find in the *Red Gurnard*, not having the like occaſion for them.

This Fiſh being ſtale, I had not opportunity of diſſecting it, and obſerving the *Viſcera*: And ſhall only farther add, That the Gills had four Oſſeous *Radij* of each ſide. But of theſe more, if I happen to get another of this ſort.

VII. Problema Medicinæ Cultoribus ſolvendum proponit Guilielmus Cockburn, M. D. R. S. S.

Experientiâ conſtat quam diverſæ ſint medicamentorum Operationes pro Temperamentorum, Ætatum, ac ejuſdem ætatis diverſi ſtatûs varietate. Magis vero conſpicua ſunt Emeticorum & Purgantium opera: Adeo, ut quæ provectiores ætate quam leniſſimè purgant, Infantes obruant: quæ juſtâ Cathartici Doſe hodie propinamus, nimis